REMARKS

Status of the Claims:

Claims 1, 26, 42, and 43 have been currently amended. Claims 59-61 have been added. After amending the claims as set forth above, claims 1-61 are now pending in this application.

Claim Rejections – 35 U.S.C. § 112 ¶1

Claims 42 and 54-58 have been rejected under 35 U.S.C. 112 as failing to comply with the written description requirement. In particular, the Examiner argues that the phrases "wherein each implantable sensing element of the plurality of sensing elements comprises a respective power supply" and "wherein the power supply for each implantable sensing element is configured to supply power independent of the power supply for each other implantable sensing element" do not have support in the specification.

However, paragraphs 0032 and 0037 of the current pending application explain that individual, respective power supplies are in the daisy-chain embodiment of Fig. 1. Moreover, paragraphs 0032 and 0037 explain that there is no need for individual, respective power supplies for the embodiment of Fig. 2. Specifically, the reference to the individual interconnects not being needed implies that they may be included, but are not necessary. As such, claims 42 and 54-58 comply with 35 U.S.C. 112. Accordingly, Applicant requests that the rejection be withdrawn.

Claim Rejections – 35 U.S.C. § 112 ¶2

Claims 1-41 and 43-58 have been rejected under 35 U.S.C. 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner argues that independent claims 1 and 43 are unclear with regard to whether the sensors have one single interconnect for all sensors (i.e., a daisy-chain configuration) or if each sensor has its own interconnect.

As discussed in the *Office Action Response* to the *Non-Final Office Action* dated April 11, 2007, claim 1 is generic to the embodiments of Figs. 1 and 2 (i.e., a daisy-chain configuration and a non-daisy-chain configuration, respectively). In particular, claim 1 (and, thus, dependent claims 2-25) recites, among other features, "a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing element is operable through electrical communication with an external controller via an individual interconnect." It is respectfully submitted that such a configuration is either generic to both embodiments I and II (Figs. 1 and 2, respectively) or reads on the elected embodiment of Fig. 2 (which shows individual conductors connected to each sensing element, for communication with an external controller). Similar comments apply to independent claim 43 and claims 44-58, which depend from claim 43.

Similarly, claim 26 refers to, among other features, "a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements operable through electrical communication with an external controller via an individual interconnect." Like claim 1, claim 26 also refers to an individual interconnect. That configuration is either generic to both embodiments I and II (Figs. 1 and 2, respectively) or reads on the elected embodiment of Fig. 2 (which shows individual conductors connected to each sensing element, for communication with an external controller).

Generic claims are proper under MPEP 806 and are not necessarily indefinite because the claims are generic (i.e., covering more than one embodiment). Accordingly, independent claims 1, 26, and 43 (including dependent claims 2-25, 27-41, and 44-58, respectively) are not indefinite.

Claim Rejections – 35 U.S.C. § 102 – Gord et al.

Claims 1-4, 8, 9, 11-12, 26, 30-31, 33, and 43 have been rejected under 35 U.S.C. 102(b) as being anticipated by Gord et al. (USPN 5,999,848). With respect to claims 1-4, 8, 9, 11-12, 26, 30-31, 33, and 43, the rejection is respectfully traversed.

Claim 1, as amended, recites, a method of sensing multiple parameters, the method comprising: implanting an implantable sensor at a single site in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements operable through electrical communication with an external controller via an individual interconnect, each implantable sensing element of the plurality of implantable sensing elements allowing for sensing at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte; and reading an output from at least one implantable sensing element of the plurality of implantable sensing elements, wherein a plurality of parameters are read from the implantable sensor at the single site, wherein the output read from said at least one implantable sensing element of the plurality of implantable sensing elements is a quantifiable value, and wherein each implantable sensing element of the plurality of implantable sensing elements comprises a respective power supply, wherein the power supply for each implantable sensing element is configured to supply power independent of the power supply for each other implantable sensing element and configured to supply power solely to the implantable sensing element of the plurality of implantable sensing elements. Similar features are found in independent claim 26.

Claim 1 is neither taught, suggested, nor rendered predictable by the Gord et al. reference. In particular, claim 1 recites, among other features, implanting an implantable sensor at a single site in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements operable through electrical communication with an external controller via an individual interconnect. According to the Examiner, the Gord et al. reference discloses implanting an implantable sensor 30 (*see, e.g.*, Figs. 1-4 of the Gord et al. reference) with a plurality of implantable sensing elements 12a-12e (*see, e.g.*, Figs. 3A-5C of the Gord et al. reference) connected to a remote controller 20'.

However, claim 1, as amended, also recites wherein each implantable sensing element of the plurality of implantable sensing elements comprises a respective power supply, wherein the power supply for each implantable sensing element is configured to supply power independent of the power supply for each other implantable sensing element and configured to supply power solely to the implantable sensing element of the plurality of implantable sensing elements. In other words, each implantable sensing element has its own power supply for powering itself. In contrast, the Gord et al. references discloses using two conductors electrically connected to a remote controller, wherein the conductors are for transmitting data to and from the remote controller as well as receiving power from the remote controller. (*See* col. 6 ll. 52-61 of the Gord et al. reference). In the Gord et al. reference (i) all the sensors share the same power source (as provided by the remote controller) and (ii) the power source is located remotely from the sensors. As such, the Gord et al. reference does not anticipate claim 1.

Claim 43, as amended, recites a method of sensing multiple parameters, the method comprising: implanting an implantable sensor at a single site in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements operable through electrical communication with an external controller having a plurality of interconnects, each of the plurality of interconnects independently connected to a respective one of the plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements allowing for sensing at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte; and reading an output from at least one implantable sensing element of the plurality of implantable sensing elements, wherein a plurality of parameters are read from the implantable sensor at the single site, wherein the output read from said at least one implantable sensing element of the plurality of implantable sensing elements is a quantifiable value, and wherein the plurality of implantable sensing elements comprises a lactate sensing element measuring a parameter for blood lactate level, a blood oxygen saturation sensing element measuring a parameter for blood oxygen level, and a pH level sensing element measuring a parameter for pH level.

Claim 43 is neither taught, suggested, nor rendered predictable by the Gord et al. reference. In particular, claim 43 recites, among other features, implanting an implantable sensor at a single site in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements operable through electrical communication with an external controller. According to the Examiner, the Gord et al. reference discloses implanting an implantable sensor 30 (*see, e.g.*, Figs. 1-4 of the Gord et al. reference) with a plurality of implantable sensing elements 12a-12e (see, e.g., Figs. 3A-5C of the Gord et al. reference) connected to a remote controller 20'.

However, claim 43, as amended, also recites the external controller having a plurality of interconnects, each of the plurality of interconnects independently connected to a respective one of the plurality of implantable sensing elements. The Gord et al. reference discloses the remote controller having two conductors 14 and 16. However, the conductors are **not independently** connected to each of the sensors. (*See, e.g.*, Fig. 1 of the Gord et al. reference). All of the embodiments in the Gord et al. reference are directed to sensors that are connected in a daisy-chain configuration, where each of the sensors shares the same two conductors. The sensors must share these conductors in order to send and receive data from the remote controller, as well as receive power from the remote controller. Accordingly, the Gord et al. reference does not disclose having each of the plurality of interconnects **independently** connected to a respective one of the plurality of implantable sensing elements. As such, the Gord et al. reference does not anticipate claim 43.

For at least the reasons above, the Gord et al. reference does not anticipate, suggest, or render predictable the system of independent claims 1, 26, and 43. Claims 2-4, 8, 9, 11, and 12, depend from claim 1 (directly or indirectly) and are believed to be allowable for at least the same reasons as claim 1 is believed to be allowable. Claim 30, 31, and 33 depend from claim 26 (directly or indirectly) and is believed to be allowable for at least the same reasons as claim 26 is

believed to be allowable. The rejection of claims 1-4, 8, 9, 11, 12, 26, 30, 31, 33, and 43, as amended herein, is respectfully traversed.

Claim Rejections – 35 U.S.C. § 102 – Hayashi et al.

Claims 1-4, 7, 9, 12, 26, 29, 31, 42, 45, and 49-58 have been rejected under 35 U.S.C. 102 (e) as being anticipated by Hayashi et al. (USPN 7,025,778). With respect to claims 1-4, 7, 9, 12, 26, 29, 31, 42, 45, and 49-58, the rejection is respectfully traversed.

Claim 1 is neither taught, suggested, nor rendered predictable by the Hayashi et al. reference. In particular, claim 1 recites, among other features, implanting an implantable sensor at a single site in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements operable through electrical communication with an external controller via an individual interconnect. According to the Examiner, the Hayashi et al. reference discloses implanting an endovascular graft 10 (*see, e.g.*, Fig. 2 of the Hayashi et al. reference) with a plurality of implantable sensing elements 16 and 116.

However, claim 1, as amended, also recites wherein each implantable sensing element of the plurality of implantable sensing elements comprises a respective power supply, wherein the power supply for each implantable sensing element is configured to supply power independent of the power supply for each other implantable sensing element and configured to supply power solely to the implantable sensing element of the plurality of implantable sensing elements t. In other words, each implantable sensing element has its own power source for powering itself. In contrast, the Hayshi et al. references discloses a power source 24 attached external to the graft for supplying power to the transmitter 22. (*See* col. 4 ll. 2-9 of the Hayashi et al. reference). Thus, the power source 24 is only for supplying power to the transmitter 22 to allow the transmitter to transmit data. The power source is not for supplying power to the sensors in the graft. Furthermore, even if the power source were to supply power to the sensors, a single power source would be supplying power to multiple sensors, for example, sensors 16, 18, and 20, as opposed

to having each sensor with its own power supply supplying power to that respective sensor. As such, the Hayashi et al. reference does not anticipate claim 1. Similar comments apply to independent claims 26 and 42.

For at least the reasons above, the Hayashi et al. reference does not anticipate, suggest, or render predictable the system of independent claims 1, 26, and 42. Claims 2-4, 7, 9, 12, 49, and 51 depend from claim 1 (directly or indirectly) and are believed to be allowable for at least the same reasons as claim 1 is believed to be allowable. Claim 29, 33, 50, and 52 depend from claim 26 (directly or indirectly) and is believed to be allowable for at least the same reasons as claim 26 is believed to be allowable. Claim 54-58 depend from claim 42 (directly or indirectly) and is believed to be allowable for at least the same reasons as claim 42 is believed to be allowable. Claims 45 and 53 depend from claim 43, which was not rejected, and thus is believed to be allowable. The rejection of claims 1-4, 7, 9, 12, 26, 29, 31, 42, 45, and 49-58, as amended herein, is respectfully traversed.

Claim Rejections – 35 U.S.C. § 103 – Gord et al.

Claims 5-7, 10, 13-25, 27-29, 32, 34-41, and 44-48 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Gord et al.. With respect to claims 5-7, 10, 13-25, 27-29, 32, 34-41, and 44-48, the rejection is respectfully traversed.

Claims 5-7, 10, 13-25, 27-29, 32, 34-41, and 44-48 are believed to be allowable at least for the reasons discussed with respect to their parent claims 1, 26, and 43. Specifically, as discussed above, none of the references, alone or in combination, discloses a method of implanting an implantable sensor having a plurality of implantable sensing elements connected to an external controller where (i) each of the implantable sensing elements having their own power supplies (claims 1 and 26), or (ii) the external controller having a plurality of interconnects independently connected to each of the plurality of sensing elements (claim 43). To establish a prima facie obviousness of a claim invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974). Because neither of the

references includes either of the recited features, there can be no prima facie obviousness. Thus, claims 5-7, 10, 13-25, 27-29, 32, 34-41, and 44-48 are believed to be allowable.

Claim Rejections – 35 U.S.C. § 103 – Hayashi et al.

Claims 5-6, 8, 10-11, 13-25, 27-28, 30, 32-41, 44-48 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi. With respect to claims 5-6, 8, 10-11, 13-25, 27-28, 30, 32-41, 44-48, the rejection is respectfully traversed.

Claims 5-6, 8, 10-11, 13-25, 27-28, 30, 32-41, 44-48 are believed to be allowable at least for the reasons discussed with respect to independent claims 1, 26, 42, and 43. Specifically, as discussed above, none of the references, alone or in combination, discloses a method of implanting an implantable sensor having a plurality of implantable sensing elements connected to an external controller where (i) each of the implantable sensing elements having their own power supplies (claims 1, 26, and 42), or (ii) the external controller having a plurality of interconnects independently connected to each of the plurality of sensing elements (claim 43). To establish a prima facie obviousness of a claim invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974). Because neither of the references includes either of the recited features, there can be no prima facie obviousness. Thus, claims 5-6, 8, 10-11, 13-25, 27-28, 30, 32-41, 44-48 are believed to be allowable.

New Claims

New claims 59-61 are added to further protect the present invention. Claims 59-61 recite, among other features, wherein each implantable sensing element is coupled by wire for electrical communication with the external controller. These claims are believed to be allowable at least for the reasons of their respective parent claims. Moreover, as discussed above, the Hayashi reference discloses using transmitters to communicate with an external controller, and as such teaches away from coupling the sensing element to the external controller by wire for electrical communication, which for example may supply data as well as power to the sensors.

Conclusion:

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date 7/16/08

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